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(54) Abstract Title
Web page retrieval by telephone number

(57) This invention relates to system for retrieving web pages from the internet 14, by searching a database 26 on a host computer 12 in which internet address are stored with a corresponding telephone number for each address. A person who knows the telephone number but not the web site address of a company can search through the telephone number data in the database 28 in order to obtain the desired web site internet address 21. The host computer 12 then can download a web page from the desired internet address and transmit the web page data to a terminal computer 10. Alternatively, the host computer may simply supply the address to the terminal computer 10, in which case the terminal computer may automatically retrieve the page from the internet, or the user may do this.
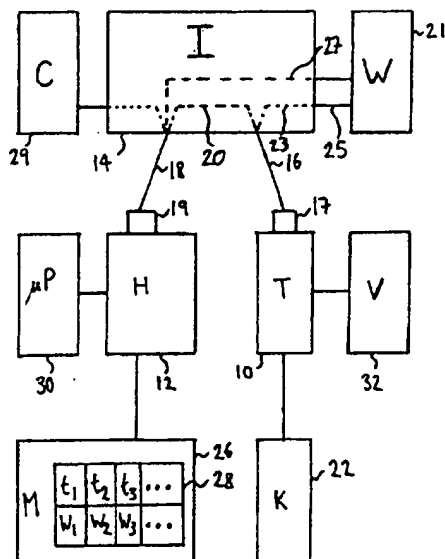

Fig. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995
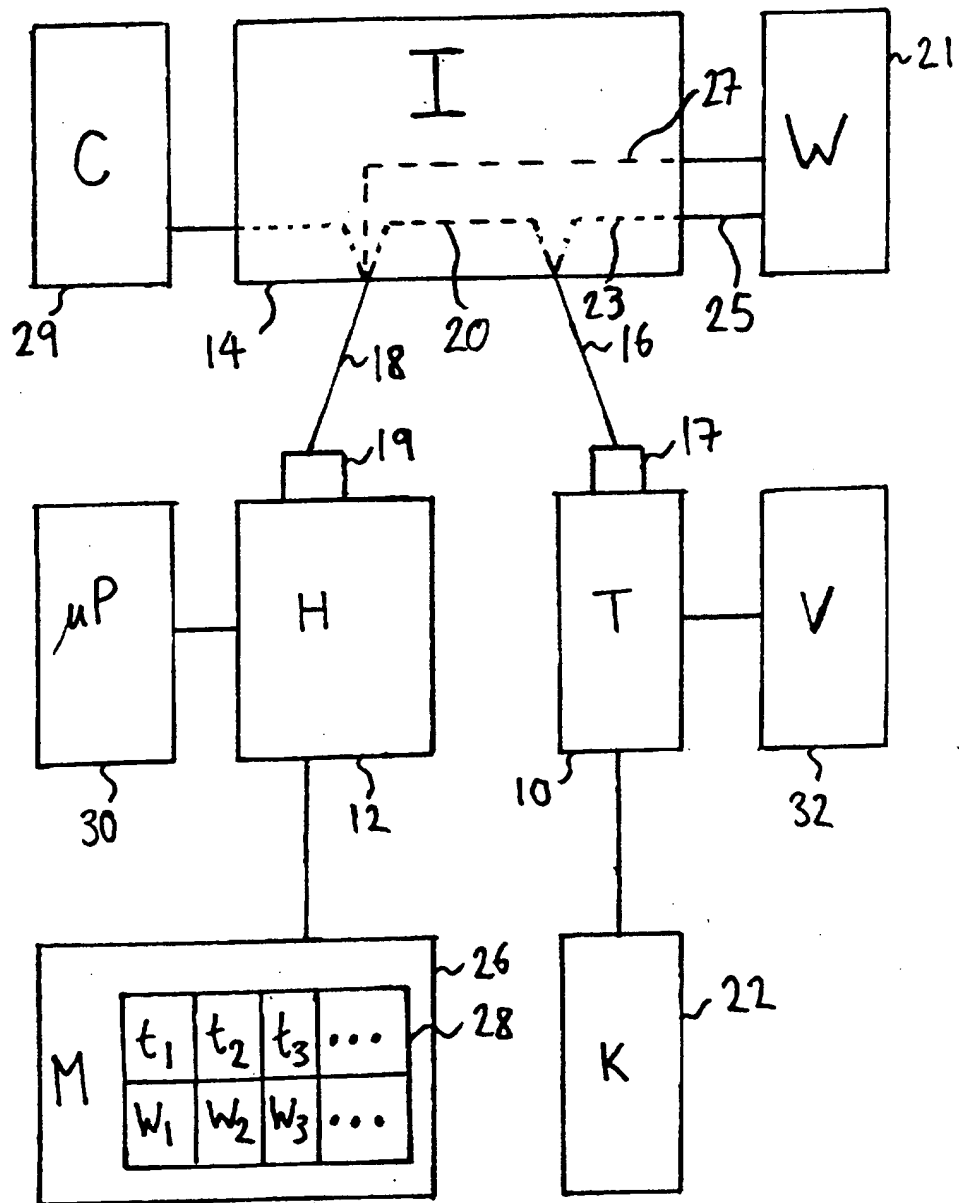
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Fig. 1

Web Page Retrieval

BACKGROUND TO THE INVENTION

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The present invention relates to a method and apparatus for retrieving web pages from the internet, in particular when the internet address of the web site at which the web page is found is not known or cannot be easily located.

10

An increasing number of companies, firms or other organisations now have a web site. Often, a member of the public will not know or will have forgotten the organisation's web site address. This is particularly true of small organisations, which may not have simple web addresses, or which may change their web address frequently. Although a search engine will normally find the web site of a large organisation if the name or activity of the organisation is known, small organisations may be incorrectly indexed or omitted altogether from the search engine's database.

It is an object of the present invention to address these above issues.

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SUMMARY OF THE PRESENT INVENTION

According to a first aspect of the present invention, there is provided a web page retrieval apparatus, comprising a terminal computer, a remote host computer, and a communication link between the terminal computer and the host computer, wherein:

a) the terminal computer has a data input device by which a user of the terminal computer may input data to the

terminal computer, a user display for displaying information to the user of the terminal computer, a data port and software for transmitting and receiving data over the communication link, and web browser software for
5   downloading web page data via the communication link;

b) the remote computer has a memory, a database stored in the memory, the database including data representative of one or more telephone numbers, data representative of one
10   or more internet addresses, each telephone number being associated with at least one internet address, a data port and software for transmitting and receiving data over the communication link, and web server software for providing web page data via the communication link; and
15

c) the terminal computer is operable to transmit via the communication link to the host computer a telephone number entered with the data input device, whereupon the remote computer is operable to use the telephone number to
20   retrieve from the database a related desired internet address, and to transmit to the terminal computer web page data that permits the terminal computer to display a web page associated with the desired internet address.

25   If a person using the terminal knows the telephone number of a company but not the address of the company web site, then he or she can search the database by entering the telephone number manually, orally or otherwise into the terminal computer using the data input device, in order to
30   retrieve the desired web page.

The web page data transmitted to the terminal computer may be an internet address such as a URL address displayed by the web browser software on the user display, preferably
35   in the form of a link, so that a person using the terminal

computer may connect to that address and down load the desired web page, for example by using a mouse to click on the link.

5   The memory of the host computer may include one or more fixed or removable disks, a tape based memory or a solid state memory.

It will be understood that components forming the host
10   computer need not all be located at the same geographical or internet location. For example, part or all of the memory of the host computer may include hard ware that is situated remotely to the data port of the host computer.

15   The database may include data on a web site in addition to the internet address and the telephone number associated with that web site. For example, the database may also include key words so that if part of a telephone number such as the area code is not known, a search can be
20   narrowed by entering a relevant key word.

A plurality of internet addresses may be associated with a single telephone number, so that after the user of the terminal computer has entered a single telephone number,
25   the user is presented with several web page addresses from which he may choose. Alternatively, a single internet address may be associated with a plurality of telephone numbers. However, to avoid confusion for user, the data in the database representative of one or each telephone
30   number will preferably be associated with data representative of a single internet addresses, such that there is just one internet address for each telephone number in the database.

35   The data input device of the terminal computer will

preferably be any device by which a user can input data, such as a keyboard, a mouse, or voice recognition software and apparatus.

5   According to a second aspect of the invention, there is provided a web page retrieval apparatus, comprising a terminal computer, a remote host computer, and a communication link between the terminal computer and the host computer, wherein:

10

a) the terminal computer has a data input device by which a user of the terminal computer may input data to the terminal computer, a user display for displaying information to the user of the terminal computer, a data

15   port and software for transmitting and receiving data over the communication link, and web browser software for downloading web page data via the communication link;

b) the remote computer has a memory, a database stored in

20   the memory, the database including data representative of one or more telephone numbers, data representative of one or more internet addresses, each telephone number being associated with at least one internet address, a data port and software for transmitting and receiving data over the

25   communication link, and web server software for providing web page data via the communication link;

c)   the terminal computer is operable to transmit via the communication link to the host computer a telephone number

30   entered with the data input device, whereupon the remote computer is operable to use the telephone number to retrieve from the database a related desired internet address, and to transmit to the terminal computer web page data that permits the terminal computer to display a web

35   page associated with the desired internet address; and

d) the terminal computer is automatically activated by said web page data to display on the user display a web page associated with the desired internet address.

Preferably, the host computer will retrieve from the internet a target web page associated with the desired internet address, and then transmit to the terminal computer web page data including said target web page, the terminal computer then being automatically activated by said web page data to display on the user display a web page associated with the desired internet address. This will allow the user of the terminal computer to view the desired web page whilst remaining connected to the internet address of the host computer, and without having to directly connect to the internet address at which the desired web page is located.

So that the user may more easily view different web pages whilst remaining connected to the web site of the host computer, the web page data transmitted by the host computer to the terminal computer may include a frame page.

According to a third aspect of the invention, there is provided a method of retrieving a web page on a terminal computer using apparatus comprising: a terminal computer having a data input device; a remote host computer; and a communication link between the terminal computer and the host computer; wherein the remote host computer and the terminal computer each have a data port and software for transmitting and receiving data over the communication link, and the host computer has a memory in which there is stored a database including data representative of one or more telephone numbers, and data representative of at

least one internet address, each telephone number being
associated with at least one internet address, the method
comprising the steps of:

5   a)   inputting data representative of at least one
telephone number into the terminal computer using the data
input device;

b)   transmitting said data from the terminal computer to
10 the host computer over the communication link;

c)   using the host computer to retrieve from the database
a related desired internet address; and

15 d)   using the host computer to transmit to the terminal
computer web page data that permits the terminal computer
to display a web page associated with the desired internet
address.

20 BRIEF DESCRIPTION OF THE DRAWING

Figure 1 is a functional diagram of a web retrieval
system according to the invention.

25 DETAILED DESCRIPTION OF THE INVENTION

The invention will now be further described, by way of
example, with reference to Figure 1.

30 The web page retrieval system as shown in Figure 1 has a
terminal computer (T) 10 and a host computer (H) 12. The
host and terminal computers 10 and 12 are each connected
to the internet (I) 14 by a respective internet connection
16,18, for example via the public switched telephone
35 network. The two computers can then be connected together

over the internet via an internet communication link 20 using web browser software in the terminal computer 10 and web server software in the host computer 12. Each computer 10,12 is provided with a respective data port 17,19 and data transfer software for receiving and transmitting data over the internet 14.

If a user wishes to view a web page at a company's web site (W) 21, the address of which the user is unaware, the user will first establish the internet communication link 20 with the host computer 12. Normally this is done by using the terminal computer 10 to contact the host computer 12 at an internet address, and downloading a web page from the host computer using the browser software operating within the terminal computer 10. The user will then enter the telephone number of the company into the terminal computer 10 using data input means in the form of a keyboard (K) 22, and transmit the data representative of this telephone number to the host computer 12 over the communication link 20.

The host computer has a memory 26 in which there is stored a database 28 having a set of internet addresses $(w1,w2,w3,...)$ and an associated set of telephone numbers $(t1,t2,t3,...)$. The association may be made by means of further data (not shown) stored in the memory. When the host computer 12 receives data representative of a telephone number from the terminal computer 10, a microprocessor (μP) 30 operably connected within the host computer 12 to the memory 26 finds the telephone number and the corresponding desired internet address of the web site 21 in the database 28.

In one embodiment, once the microprocessor (μP) 30 has retrieved the desired internet address from the database

28, the host computer 12 transmits the desired internet address to the terminal computer 10 over the communication link 20. The user of the terminal computer 10 is then able using the internet address to connect his computer to the web site 21 directly and download the web page located at that address, via the internet connection 16 and a further internet communication link 23 and internet connection 25. The web page may then be viewed on a user display of the terminal computer 10, such as a video monitor (V) 32.

In another embodiment of the invention, once the host computer 12 has retrieved the desired internet address, the host computer 12 will connect to the web site 21 at that address via an internet communication route 27, and will download from the web site 21 at least one web page before transmitting the web page data to the terminal computer 10 over the internet communication link 20, so that the web page may automatically be viewed on the terminal computer monitor 32.

A new internet client computer (C) 29 of the host 12 may upload to the host database 28 data including the telephone number of the client user and the client internet address in the following manner. First, the client user will establish a communication link between the client computer 29 and the host 12 over the internet 14, and download a web page from the host computer onto the client computer 29. The client user will then enter his telephone number and the client 29 will transmit the telephone number data to the host computer 12. The data submitted by the client will then be vetted by the operators of the host database to ensure its accuracy and suitability for inclusion in the database. The client telephone number and internet address will then be added to the data stored in the database 28 such that the

internet address can be retrieved by the microprocessor 30 if the telephone number is known.

5 The operator of the host database may charge a subscription to clients or may collect revenue from advertising on the host web site.

It is envisaged that client companies will display their telephone number in directories, on company letterhead and 10 other printed matter in a way that identifies the telephone number as being capable of allowing a user to locate a company web site via that host computer.

As it will be appreciated from the above description, the 15 host computer allows web sites to be located according to the telephone number of the company the web site is advertising. This provides a useful aid in web page retrieval and has many commercial applications. For example, companies whose web and telephone number details 20 are on the host computer database can indicate this next to their telephone number on posters or other printed matter, so that members of the public who see and remember the telephone number of a company can also access its web site without having to remember the internet address.

25

Claims

1.   A web page retrieval apparatus, comprising a terminal computer, a remote host computer, and a communication link
5   between the terminal computer and the host computer, wherein:

a) the terminal computer has a data input device by which a user of the terminal computer may input data to the
10   terminal computer, a user display for displaying information to the user of the terminal computer, a data port and software for transmitting and receiving data over the communication link, and web browser software for downloading web page data via the communication link;

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b) the remote computer has a memory, a database stored in the memory, the database including data representative of one or more telephone numbers, data representative of one or more internet addresses, each telephone number being
20   associated with at least one internet address, a data port and software for transmitting and receiving data over the communication link, and web server software for providing web page data via the communication link;

25   c) the terminal computer is operable to transmit via the communication link to the host computer a telephone number entered with the data input device, whereupon the remote computer is operable to use the telephone number to retrieve from the database a related desired internet
30   address, and to transmit to the terminal computer web page data that permits the terminal computer to display a web page associated with the desired internet address.

2.   A web page retrieval apparatus, comprising a terminal
35   computer, a remote host computer, and a communication link

between the terminal computer and the host computer, wherein:

a) the terminal computer has a data input device by which
5 a user of the terminal computer may input data to the terminal computer, a user display for displaying information to the user of the terminal computer, a data port and software for transmitting and receiving data over the communication link, and web browser software for
10 downloading web page data via the communication link;

b) the remote computer has a memory, a database stored in the memory, the database including data representative of one or more telephone numbers, data representative of one
15 or more internet addresses, each telephone number being associated with at least one internet address, a data port and software for transmitting and receiving data over the communication link, and web server software for providing web page data via the communication link;

20

c) the terminal computer is operable to transmit via the communication link to the host computer a telephone number entered with the data input device, whereupon the remote computer is operable to use the telephone number to
25 retrieve from the database a related desired internet address, and to transmit to the terminal computer web page data that permits the terminal computer to display a web page associated with the desired internet address;

30 d) the terminal computer is automatically activated by said web page data to display on the user display a web page associated with the desired internet address.

3. A web page retrieval apparatus as claimed in Claim 1,
35 in which the web page data is an internet address

displayed by the web browser on the user display.

4.   A web page retrieval apparatus as claimed in Claim 2, in which the host computer retrieves from the internet a

5   target web page associated with the desired internet address, and then transmits to the terminal computer web page data including said target web page, the terminal computer then being automatically activated by said web page data to display on the user display a web page

10   associated with the desired internet address.

5.   A web page retrieval apparatus as claimed in Claim 2, in which the terminal computer is automatically activated upon receipt of the web page data to retrieve from the

15   internet a target web page associated with the desired internet address, and then to display on the user display a web page associated with the desired internet address.

6.   A web page retrieval apparatus as claimed in any

20   preceding claim, in which there is just one internet address associated with each telephone number.

7.   A method of retrieving a web page on a terminal computer using apparatus comprising: a terminal computer

25   having a data input device; a remote host computer; and a communication link between the terminal computer and the host computer; wherein the remote host computer and the terminal computer each have a data port and software for transmitting and receiving data over the communication

30   link, and the host computer has a memory in which there is stored a database including data representative of one or more telephone numbers, and data representative of at least one internet address, each telephone number being associated with at least one internet address, the method

35   comprising the steps of:

a) inputting data representative of at least one telephone number into the terminal computer using the data input device;

5

b) transmitting said data from the terminal computer to the host computer over the communication link;

c) using the host computer to retrieve from the database
10 a related desired internet address; and

d) using the host computer to transmit to the terminal computer web page data that permits the terminal computer to display a web page associated with the desired internet
15 address.

8. A method of retrieving a web page as claimed in Claim 7, comprising the further step of automatically activating the terminal computer to display on a user display a web
20 page in response to the web page data transmitted by the host computer.

9. A web page retrieval apparatus substantially as herein described with reference to or as shown in the
25 accompanying drawings.

10. A method of retrieving a web page substantially as herein described with reference to the accompanying drawings.

Application No:	GB 0001875.4
Claims searched:	1 to 10

Examiner:	Julyan Elbro
Date of search:	26 September 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

    UK Cl (Ed.R): G4A (AUDB)

    Int Cl (Ed.7): G06F 17/30

Other: ONLINE: COMPUTER EPODOC JAPIO WPI Selected Internet Sites

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	WO 99/22488 A2 D & I SYSTEMS see in particular page 6 line 32 to page 7 line 28 and page 23 lines 10 to 18.	1, 2, 5 to 8
X	WO 96/42041 A2 OPEN MARKET see in particular page 17 lines 17 to 28.	1, 2, 5 to 8
X	PC/Computing, No. 248, December 1999, "Answers", in particular the reference to InfoUSA.com, and the website http://www.infousa.com	1 to 4, 6 to 8
X	Teleconnect, volume 17, No. 4, April 1999, Harry Newton, "Dollar Saving Tips", page 12, in particular the section "The Web is Great for Phone Numbers", and the website http://www.anywho.com , particularly "Why Use AnyWho?".	1 to 4, 6 to 8
X	http://www.555-1212.com/about_us.cfm see in particular the opening paragraph.	1 to 4, 6 to 8
X	http://www.infospace.com/_1_4MB2TRT02U9USYJ_info/articles/pr5289 6.html see in particular the first three paragraphs.	1 to 4, 6 to 8

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		E	Patent document published on or after, but with priority date earlier than, the filing date of this application.
&	Member of the same patent family		